

IN THE DRAWINGS

The present application was originally filed with drawings having handwritten legends. Enclosed are replacement drawing sheets that do not have handwritten legends, to replace the original drawings. No new matter has been added.

REMARKS

Applicant has carefully reviewed and considered the Office Action mailed on April 20, 2006, and the references cited therewith.

Claims 1, 11, 12, 16, 26, 30, and 33 have been amended herein. Claims 1-36 are still pending in this application.

The rejections in the Office Action mailed on April 20, 2006 rely on at least one 35 USC § 102(a) reference and at least one 35 USC § 102(e) reference. Applicants do not admit that these various references are prior art in this application and reserve the right to swear behind these references in the future.

§102 Rejection of the Claims

Claims 11 and 15 were rejected under 35 USC § 102(e) as being anticipated by Kim et al. (U.S. Publication Number 2002/0141349).

“A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). “The identical invention must be shown in as complete detail as is contained in the ... claim.” *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989) (emphasis added).

Claim 11 is directed to an apparatus comprising: (a) an interconnect to provide communication between at least two components of said apparatus; and (b) a data rate adjustment unit to adjust a data rate associated with said interconnect based on interference within said apparatus that is generated by said interconnect, wherein adjusting said data rate associated with said interconnect reduces the level of interference being generated by said interconnect.

Kim et al. is directed to a technique for controlling the data transmission rate on the reverse link in a mobile communication system for each mobile station in a dedicated manner. Fig. 3 of Kim et al. illustrates a base station 30 that includes a reception processor 31, an interference level detector 32, a comparator 33, a determinator 34, and a transmission processor 35. The reception processor 31 processes (e.g., demodulates) signals received from the mobiles.

The interference level detector 32 estimates and/or detects a level of signal interference related to the processed signals. One signal interference parameter that may be used is “rise over thermal” (ROT). The comparator 33 compares the interference level to a threshold to estimate the load on the reverse link. The determinator 34 then determines how to adjust transmission data rate on the reverse channel based on the reverse link load. The transmission processor 35 then sends the transmission data rate adjust information to the mobiles. (See paragraphs 0045-0047 of Kim et al.).

Kim et al. does not include “a data rate adjustment unit to adjust a data rate associated with said interconnect based on interference within said apparatus that is generated by said interconnect, wherein adjusting said data rate associated with said interconnect reduces the level of interference being generated by said interconnect.” As described above, the interference in Kim et al. is caused by wireless transmissions in a wireless channel. The interference is not generated within an interconnect of the base station 30 of Fig. 3. In addition, the change in reverse channel transmission data rate determined by the determinator 34 of Fig. 3 of Kim et al. does not reduce the level of interference being generated by the interconnect.

Based on the foregoing, it is submitted that claim 11 is not anticipated by Kim et al. Reconsideration and allowance of claim 11 is therefore respectfully requested.

Claim 15 is a dependent claim that depends from independent claim 11. Consequently, claim 15 is allowable for at least the same reasons as claim 11.

§103 Rejection of the Claims

Claims 1, 7-10, 16, 25-26, and 30 were rejected under 35 USC § 103(a) as being unpatentable over Prismantas et al. (U.S. Publication Number 2002/0155811) in view of Evoy (U.S. Publication Number 2006/0059213).

“To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.” MPEP § 2142 “All words in a claim must be considered in judging the

patentability of that claim against the prior art.” *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970).

Claim 1 is an independent claim directed to an apparatus comprising: (a) an interference detector to detect interference within wireless circuitry that is caused by an interconnect within the apparatus; and (b) a spectral shaping unit to modify at least one transmission characteristic associated with said interconnect in response to detection of interference by said interference detector to mitigate interference caused by said interconnect.

Prismantas et al. is directed to a system and method for adapting RF transmissions to mitigate the effects of certain interferences. In paragraphs 0020-0023, Prismantas et al. describes various techniques to detect RF interference in a vicinity about a hub 11. In Fig. 2 of Prismantas et al., extraneous RF signals are first monitored (201) and the interference is then broken into interference types (202). Other characteristics of the interference are then determined (203). Eventually, one or more actions are selected to reduce the effects of the interference on RF transmissions (205). All of the possible actions discussed in Prismantas et al. have to do with changes in the RF transmission characteristics. For example, with reference to Fig. 2 of Prismantas et al., the identified actions include time synchronization, RF frequency change, adaptive modulation, change in channel width of data, change in code rate, change in polarization (e.g., from horizontal to vertical, etc.), and changing to a different antenna/hub.

Neither Prismantas et al. nor Evoy, either alone or in combination, disclose or suggest “an interference detector to detect interference within wireless circuitry that is caused by an interconnect within the apparatus.” In addition, neither Prismantas et al. nor Evoy, either alone or in combination, disclose or suggest “a spectral shaping unit to modify at least one transmission characteristic associated with said interconnect in response to detection of interference by said interference detector to mitigate interference caused by said interconnect.” As described above, Prismantas et al. discloses some actions that may be taken to reduce the effects of interference on RF transmissions. None of these actions involve changing a transmission characteristic associated with an interconnect within an apparatus. In addition, the interference of concern in Prismantis et al. is interference generated outside of the hub 11, not interference generated by an interconnect “within the apparatus.” Evoy was cited because it discloses an interconnect. However, Evoy does not discuss interference created by interconnects

or mitigation of such interference. Therefore, the relied upon references do not teach or suggest all of the claim limitations of independent claim 1.

Based on at least the foregoing, it is submitted that a prima facie case of obviousness has not been established with respect to claim 1. Reconsideration and allowance of claim 1 is therefore respectfully requested.

Claim 16 is an independent claim directed to a method comprising: (a) determining that interference mitigation should be performed for wireless circuitry to reduce interference generated by an interconnect; and (b) adjusting at least one transmission characteristic associated with said interconnect in response to said determination to reduce said interference generated by said interconnect.

Neither Prismantas et al. nor Evoy, either alone or in combination, disclose or suggest “determining that interference mitigation should be performed for wireless circuitry to reduce interference generated by an interconnect.” In addition, neither Prismantas et al. nor Evoy, either alone or in combination, disclose or suggest “adjusting at least one transmission characteristic associated with said interconnect in response to said determination to reduce said interference generated by said interconnect.” Therefore, the relied upon references do not teach or suggest all of the claim limitations of claim 16.

Based on at least the foregoing, it is submitted that a prima facie case of obviousness has not been established with respect to claim 16. Similar arguments apply to independent claim 30. Reconsideration and allowance of claims 16 and 30 is therefore respectfully requested.

Claim 26 is an independent claim directed to a method comprising: (a) measuring an interference-related parameter associated with a wireless transceiver; and (b) adjusting at least one transmission characteristic associated with an interconnect within a device that includes said wireless transceiver when said measured interference-related parameter meets a predetermined criterion, wherein adjusting is performed to reduce interference generated by said interconnect.

Neither Prismantas et al. nor Evoy, either alone or in combination, disclose or suggest “adjusting at least one transmission characteristic associated with an interconnect within a device that includes said wireless transceiver when said measured interference-related parameter meets a predetermined criterion, wherein adjusting is performed to reduce interference generated by

said interconnect.” Therefore, the relied upon references do not teach or suggest all of the claim limitations of claim 26.

Based on at least the foregoing, it is submitted that a prima facie case of obviousness has not been established with respect to claim 26. Reconsideration and allowance of claim 26 is therefore respectfully requested.

Claims 7-10 and claim 25 are dependent claims that depend either directly or indirectly from independent claims 1 and 16, respectively. Consequently, these claims are allowable for at least the same reasons as their respective base claims. These claims also provide further bases for patentability. For example, claim 7 further defines the “interconnect” of claim 1 as including “a PCI Express interconnect.” Neither Prismantas et al. nor Evoy, either alone or in combination, disclose or suggest the detection of interference caused by a PCI express interconnect or the use of spectral shaping to modify at least one transmission characteristic associated with a PCI express interconnect to mitigate interference caused by a PCI express interconnect. Claim 8 further defines the “interconnect” of claim 1 as including “bus.” Neither Prismantas et al. nor Evoy, either alone or in combination, disclose or suggest the detection of interference caused by a bus or the use of spectral shaping to modify at least one transmission characteristic associated with a bus to mitigate interference caused by the bus. Claim 9 further defines the “interconnect” of claim 1 as providing “communication between said wireless circuitry and a host chip set.” Neither Prismantas et al. nor Evoy, either alone or in combination, disclose or suggest the detection of interference caused by an interconnect providing communication between wireless circuitry and a host chip set or the use of spectral shaping to modify at least one transmission characteristic associated with an interconnect providing communication between wireless circuitry and a host chip set to mitigate interference caused by the interconnect.

Claim 25 further defines “adjusting” of claim 16 as including “selecting at least one new transmission characteristic value for use with said interconnect based on a wireless application presently being executed.” For example, on page 8, lines 13-19 of the specification as filed, it states that a first data rate may be selected for an interconnect if a first wireless standard is being implemented, a second data rate may be selected if a second wireless standard is being implemented, and so on. Neither Prismantas et al. nor Evoy, either alone or in combination,

disclose or suggest the selection of a transmission characteristic for an interconnect based on an application being executed. The Examiner refers to box 205 in Fig. 2 of Prismantas et al., but this box is selecting an action based on a type of interference and is not selecting a transmission characteristic value for an interconnect based on an application being executed.

Claims 2, 4-5, 17, 19-20, 27-28, and 31 were rejected under 35 USC 103(a) as being unpatentable over Prismantas et al. (U.S. Publication Number 2002/0155811) in view of Evoy (U.S. Publication Number 2006/0059213) and further in view of Miyoshi et al. (U.S. Publication Number 2003/0022629).

Claims 2 and 4-5, claims 17 and 19-20, claims 27-28, and claim 31 are dependent claims that depend either directly or indirectly from independent claims 1, 16, 26, and 30, respectively. Consequently, these claims are allowable for at least the same reasons as their respective base claims. These claims also provide further bases for patentability. For example, claim 2 further defines the “interference detector” of claim 1 as including “an error rate unit to determine an error rate associated with said wireless circuitry, said error rate being related to interference within said wireless circuitry.” None of the references relied upon by the Examiner disclose or suggest an error rate unit being used to detect interference in a wireless apparatus. Miyoshi et al. discloses an error detection section 118 that performs a CRC on receive data to determine whether or not an error has occurred for purposes of requesting retransmission, but does not use the error detection section 118 to detect the presence of interference. A similar argument applies to claims 17 and 28.

Claim 4 further defines the “interference detector” of claim 1 as including “a throughput measurement unit to determine a throughput associated with said wireless circuitry, said throughput being related to interference within said wireless circuitry. None of the references relied upon by the Examiner disclose or suggest a throughput measurement unit being used to detect interference in a wireless apparatus. Miyoshi et al. discusses throughput measurement, but does not use it to detect interference. A similar argument applies to claim 19.

Claim 5 further defines the “at least one transmission characteristic” of claim 1 as including “a data rate of said interconnect.” None of the references relied upon by the Examiner disclose or suggest modifying a data rate of an interconnect to mitigate interference caused by the interconnect. Miyoshi et al. discusses finding a transmission rate for a wireless channel at

which communication is possible, but does not disclose modifying a data rate of an interconnect to mitigate interference caused by the interconnect. A similar argument applies to claims 20 and 31.

Claim 27 adds to the method of claim 26 “repeating measuring and adjusting until said interference-related parameter does not meet said predetermined criterion.” None of the references relied upon by the Examiner disclose or suggest repeatedly measuring an interference related parameter and adjusting at least one transmission characteristic associated with an interconnect until the interference related parameter does not meet the predetermined criterion. The Examiner takes the position that Miyoshi et al. discloses this subject matter in paragraph 0004. However, paragraph 0004 does not appear to disclose a repetitive process of measuring and adjusting. Applicants respectfully request that the Examiner provide clarification of this rejection.

Claims 3, 18, and 29 were rejected under 35 USC 103(a) as being unpatentable over Prismantas et al. (U.S. Publication Number 2002/0155811) in view of Evoy (U.S. Publication Number 2006/0059213) and further in view of Barilovits (U.S. Publication Number 2004/0097251).

Claim 3, claim 18, and claim 29 are dependent claims that depend directly from independent claims 1, 16, and 26, respectively. Consequently, these claims are allowable for at least the same reasons as their respective base claims. These claims also provide further bases for patentability. For example, claim 3 further defines the “interference detector” of claim 1 as including “a ranging unit to determine a communication range associated with said wireless circuitry, said communication range being related to interference within said wireless circuitry.” None of the references relied upon by the Examiner disclose or suggest a ranging unit being used to detect interference in a wireless apparatus. Barilovits discloses that Bluetooth devices transmit a one milliwatt signal that limit their range to approximately 10 meters, but the reference does not disclose or suggest using a ranging unit to detect interference within an apparatus. A similar argument applies to claims 18 and 29.

Claim 6 was rejected under 35 USC 103(a) as being unpatentable over Prismantas et al. (U.S. Publication Number 2002/0155811) in view of Evoy (U.S. Publication Number 2006/0059213) and further in view of Kovalan et al. (U.S. 6,453,374).

Claim 6 is a dependent claim that depends directly from independent claim 1. Consequently, claim 6 is allowable for at least the same reasons as claim 1. Claim 6 also provides further basis for patentability. That is, claim 6 further defines the “at least one transmission characteristic” of claim 1 as including “a slew rate of said interconnect.” None of the references relied upon by the Examiner disclose or suggest modifying a slew rate of an interconnect to mitigate interference caused by the interconnect. Kovalan et al. discloses that higher signal transition slew rates are required as transmission bit rates increase to ensue that signal levels reach a desired value before the bit rate requires transition back to another value, but the reference does not disclose modifying the slew rate of an interconnect to mitigate interference caused by the interconnect.

Claim 12 was rejected under 35 USC 103(a) as being unpatentable over Kim et al. (U.S. Publication Number 2002/0141349) in view of Clow et al. (U.S. 6,005,890).

Claim 12 is a dependent claim that depends directly from independent claim 11. Consequently, claim 12 is allowable for at least the same reasons as claim 11. Claim 12 also provides further basis for patentability. That is, claim 12 adds to the apparatus of claim 11 “a slew rate adjustment unit to adjust a slew rate associated with said interconnect based on interference within said apparatus that is being generated by said interconnect, wherein adjusting said slew rate associated with said interconnect reduces the level of interference being generated by said interconnect.” None of the references relied upon by the Examiner disclose or suggest adjusting a slew rate of an interconnect to reduce interference generated by the interconnect. Clow et al. discloses the adjustment of slew rate to eliminate EMI coupled into a system, but does not disclose the adjustment of the slew rate of an interconnect to reduce the level of interference generated by the interconnect.

Claims 13-14 were rejected under 35 USC 103(a) as being unpatentable over Prismantas et al. (U.S. Publication Number 2002/0155811) in view of Evoy (U.S. Publication Number 2006/0059213).

Claims 13-14 are dependent claims that depend directly from independent claim 11. Consequently, these claims are allowable for at least the same reasons as claim 11. These claims also provide further basis for patentability. For example, claim 13 further defines the “interconnect” of claim 11 as including “a PCI Express interconnect.” None of the references

relied upon by the Examiner disclose or suggest the adjustment of a data rate on a PCI Express interconnect based on interference generated by the PCI Express interconnect. Claim 14 further defines the “interconnect” of claim 11 as including “a bus.” None of the references relied upon by the Examiner disclose or suggest the adjustment of a data rate on a bus based on interference generated by the bus.

Claim 21 was rejected under 35 USC 103(a) as being unpatentable over Prismantas et al. (U.S. Publication Number 2002/0155811) in view of Evoy (U.S. Publication Number 2006/0059213) and further in view of Kato et al. (U.S. Publication Number 2004/0005885).

Claim 21 is a dependent claim that depends directly from independent claim 16. Consequently, claim 21 is allowable for at least the same reasons as claim 16. Claim 21 also provides further basis for patentability. That is, claim 21 further defines “adjusting” of claim 16 as including “initially changing a data rate of said interconnect from a first rate to a second rate in response to said determination and then changing said data rate from said second rate back to said first rate a predetermined time period later.” None of the references relied upon by the Examiner disclose or suggest such a data rate change on an interconnect to reduce interference generated by the interconnect. Kato discloses a transmission rate switching control method where a predetermined period of time is set for each current transmission rate, but the transmission rates are rates for wireless communication signals, not an interconnect, and the switching is not performed to reduce interference generated by an interconnect.

Claims 24 and 32 were rejected under 35 USC 103(a) as being unpatentable over Prismantas et al. (U.S. Publication Number 2002/0155811) in view of Evoy (U.S. Publication Number 2006/0059213) and further in view of Clow et al (U.S. 6,005,890).

Claim 24 and claim 32 are dependent claims that depend directly from independent claims 16 and 30, respectively. Consequently, these claims are allowable for at least the same reasons as their respective base claims. These claims also provide further basis for patentability (see, e.g., the discussion of claim 12 above).

Claims 33-34 were rejected under 35 USC 103(a) as being unpatentable over Prismantas et al. (U.S. Publication Number 2002/0155811) in view of Ginzburg et al. (U.S. 2004/0264396).

Independent claim 33 is allowable for at least the same reasons as independent claim 1 discussed above. Claim 34 is a dependent claim that depends directly from independent claim 33. Consequently, claim 34 is allowable for at least the same reasons as claim 33.

Claim 35 was rejected under 35 USC 103(a) as being unpatentable over Prismantas et al. (U.S. Publication Number 2002/0155811) in view of Ginzburg et al. (U.S. Publication Number 2004/0264396) and further in view of Kim et al. (U.S. Publication Number 2002/0141349).

Claim 35 is a dependent claim that depends directly from independent claim 33. Consequently, claim 35 is allowable for at least the same reasons as claim 33. Claim 35 also provides further basis for patentability. That is, claim 35 further defines the “spectral shaping unit” of claim 33 as including “a data rate adjustment unit to adjust a data rate of said interconnect.” None of the references relied upon by the Examiner disclose the adjustment of a data rate of an interconnect to mitigate interference generated by the interconnect.

Claim 36 was rejected under 35 USC 103(a) as being unpatentable over Prismantas et al. (U.S. Publication Number 2002/0155811) in view of Ginzburg et al. (U.S. Publication Number 2004/0264396) and further in view of Clow et al. (U.S. 6,005,890).

Claim 36 is a dependent claim that depends directly from independent claim 33. Consequently, claim 36 is allowable for at least the same reasons as claim 33. Claim 36 also provides further basis for patentability. That is, claim 36 further defines the “spectral shaping unit” of claim 33 as including “a slew rate adjustment unit to adjust a slew rate of said interconnect.” None of the references relied upon by the Examiner disclose the adjustment of a slew rate of an interconnect to mitigate interference generated by the interconnect.

Allowable Subject Matter

Claims 22-23 were objected to as being dependent upon a rejected base claim, but were indicated to be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. As it is believed that the present independent claims are allowable for the reasons set forth above, claim 22 and 23 have not been rewritten herein.

Conclusion

Applicant respectfully submits that the claims are in condition for allowance and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney (480-948-3745) to facilitate prosecution of this application.

Respectfully submitted,

SEH W. KWA ET AL.

By their Representatives,

CUSTOMER NUMBER: 45643

480-948-3745

Date

6/7/06

By

John C. Scott

Reg. No. 38,613

CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: Mail Stop Amendment, Commissioner of Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on this 7 day of June, 2006.

MEREDITH MESCHER

Name

Meredith Mescher

Signature